THE ACTIVITIES OF THE DIVISION OF FOREST INSECTS, BUREAU OF ENTOMOLOGY, AND THEIR BEARING ON RESEARCH IN FORESTRY.

January 5, 1926.

The Division of Forest Insects is one of several major subdivisions of the Bureau of Entomology. For the present fiscal year the appropriation for this Bureau carries $75,000 for Forest Insect Investigations. This is divided among four major projects - Cooperative forest insect control, Insects affecting forest trees, Insects injurious to forest products, and Insects affecting shade trees.

Cooperative control is a western project confined to the forested areas of the Rocky Mountain and Pacific Coast regions. It consists largely of the administration of technical features, direction and analysis of results of control projects directed against tree-killing bark beetles. In this work we are in close cooperation with the Forest Service, National Park Service, Office of Indian Affairs and private owners. At the request of these organizations we make surveys of beetle-infested areas and give recommendations as to the advisability of and as to the methods for control. This project developed early in the history of the Division and now requires over one-third of our total appropriations. Our inability to expand and adequately meet eastern needs, particularly in conjunction with the work of the Forest Service Experiment Stations, is due to the necessity of continuing this important form of service. Research on several problems, such as the causes underlying bark-beetle epidemics, improvement in control methods, the relation of insects and forest fires and insects and timber-sale methods of the Forest Service is also supported. Two permanent and two temporary field stations are maintained in the western States and several more are urgently needed.

Insects affecting forest products. There are a great number of insects destructive to all forms of wood products, from the green felled tree to the finished seasoned article. Such pests as the pine sawyer, pin-hole borers, white ants or termites, and powder post beetles are familiar to all of you. Much time and energy has been devoted to the development of methods of preventing damage to material of this character, and considerable progress can be reported. In many cases all that is necessary for adequate protection is simple alteration in the methods of handling the material in the woods, at the mill or warehouse. Again, repellent sprays or dips are effectively employed or the wood is impregnated with chemicals. We maintain two experimental grounds, one in Virginia and another in Panama, Canal Zone, where chemicals and wood preservatives are tested.

A small part of our appropriation is devoted to the study of insects affecting shade trees and ornamental shrubs. Very little in the way of investigation is carried on but an enormous number of inquiries is answered. In this work our chief objective is to give information on the insects reported doing injury and recommend well-known methods of control.

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Our other major project - insects affecting forest trees - is not very descriptive as to title. This project covers all general investigation east of the Rocky Mountains. Under it we maintain our cooperative studies with the Forest Service Experiment Stations and miscellaneous investigations on forest insects. The service factor is only incidental. Four field stations are maintained, three in cooperation with the Forest Service Experiment Stations - at St. Paul, Minn., Amherst, Mass., and Asheville, N.C. - and one near Washington, D.C. Approximately $20,000 of our appropriations is devoted to the maintenance of the work at these points. This plan we hope to see rapidly expanded in the future as funds and trained men become available. We should have entomologists at every Forest Experiment Station.

In this connection it may be well to explain more fully our objectives since these phases of our activities have their most direct bearing on your interests. Through our studies of the major forest insect pests we hope to learn more of the conditions favoring or detrimental to serious damage and to make this knowledge available to the forester so that it can be applied in developing sound practices in timber culture. Some species of trees and some types of forests are little affected by insects but again insects may be the limiting factor in successful timber production. The growing of future timber crops in certain forest types is bound to fail unless the practices are based on an adequate consideration of the insects affecting such types. In our common and highly artificial agricultural practices we have so altered natural conditions that we invite insect depredations and consequently we must wage a continuous war against these enemies.

This applies equally well to our forests. Numerous examples might be cited where man's activities through selective logging or other alterations in the original forest have brought about insect epidemics. On the other hand under more natural conditions such as existed in our original forests, a greater degree of stability is maintained. We know from the experience of European foresters in their desire for immediate gains that serious consequences have resulted from entirely disregarding nature's methods. Therefore, as cultural practices for growing timber are developed we must more fully understand the complex relations existing in the forests to avoid fatal mistakes. Insects are one of the most important of these biotic factors. We think of them chiefly in their role of destroying green standing timber yet in fact this is only one of a number of their relations. Other important roles, as bringing about changes in the composition of the forest often increasing the percentage of less desirable species, inhibiting the reproduction of certain desirable species, affecting the rate of growth and thus lengthening the rotation period and augmenting the ill effects of fire, cannot be disregarded.

It is such objectives as these that we are planning to reach in the future. To accomplish these ideals the entomologist is dependent on

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the forester for much information concerning the forests, rate of growth, site and type classification, silvicultural characteristics of the trees, etc., all of which is essential to the proper interpretation of the insect bionomics and consequently cooperation and coodinated effort of the forester and entomologist is essential. We desire to fit our program of work into that of various organizations conducting forest research and to do our part toward the solution of the many important problems now before the country in this great national movement to insure a future supply of timber.

It is a pleasure to state that we are receiving the hearty support of the Forest Service in these endeavors. Where cooperative relations have been established mutual benefit has already been manifested and let us hope will be augmented in the future.

This gathering is no doubt most vitally interested in what we are doing in the Southeast, consequently I want to make a few remarks on recent developments in this region. Last summer we established a field station near Asheville, N.C., in cooperation with the Appalachian Forest Experiment Station. Two men were assigned to the work at this point and after conference with the Experiment Station staff we decided to concentrate our activities on pine problems. Considerable regret and in fact some criticism was voiced by timberland owners in the extreme South that we did not devote more time to an investigation of the dying timber in eastern Texas and Louisiana. Reliable reports indicate a loss of approximately 300,000,000 feet of mature pine, due to a combination of extreme drought and several species of bark beetles. This situation was unique in our experience and we were extremely diffident as to making any broadcast recommendations for control. Should the insects prove to be a minor factor, thousands of dollars might have been spent in control without mitigating the situation in the least. We, therefore, decided that it would be better to frankly state our position and concentrate our investigations near our field base at Asheville where laboratory facilities were available for a more thorough study of a similar problem.

The southern pine beetle is an ever threatening menace to pines of the South. Past losses have been enormous. It seems to show little discrimination between vigorous second growth and mature stands when climatic conditions favoring its rapid multiplication appear. A tip moth is destroying large acreages of young loblolly planted at considerable expense. A borer attracted to turpentined trees, following scorching from ground fires, riddles the heartwood, causing 10 to even 75 per cent of the trees to breaf off in windstorms. All these problems and many more must be taken up as soon as possible.

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